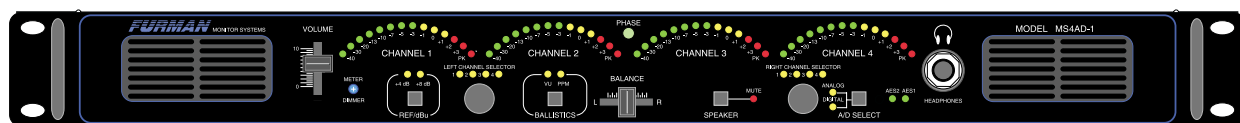


# CONFIDENCE MONITOR SYSTEMS

MODELS MS2A-1, MS2AD-1, MS4A-1, MS4AD-1, MS2AV-1, MS2ADV-1



MS2ADV-1



MS4AD-1

## FEATURES

- Six MS Series Confidence Monitor models:
  - MS2A-1** 2 Channel, Analog Audio
  - MS2AD-1** 2 Channel, Analog/Digital Audio
  - MS4A-1** 4 Channel, Analog Audio
  - MS4AD-1** 4 Channel, Analog/Digital Audio
  - MS2AV-1** 2 Channel, Analog Audio, Video
  - MS2ADV-1** 2 Channel, Analog/Digital Audio, Video

## ALL MODELS

- High output magnetically shielded speakers
- Wide-range, high visibility, 14 segment meters with dimmer and VU/PPM switch
- Selectable +4 dBu or +8 dBu meter reference
- High power, low distortion headphone amplifier
- Phase indicator
- Signal Present indicators on all input/output ports
- Speaker Mute switch
- Volume and Balance slide controls
- Universal 100-240 VAC agency listed external power supply
- Long life front panel mylar overlay
- Wide variety of models available, including SDI inputs
- Three year limited warranty

## ANALOG/DIGITAL AUDIO MODELS

- Digital inputs conform to AES/EBU 75 ohm/BNC standard
- Analog/Digital Select switch

## VIDEO MODELS

- 1.8" color LCD TFT display auto senses NTSC/PAL

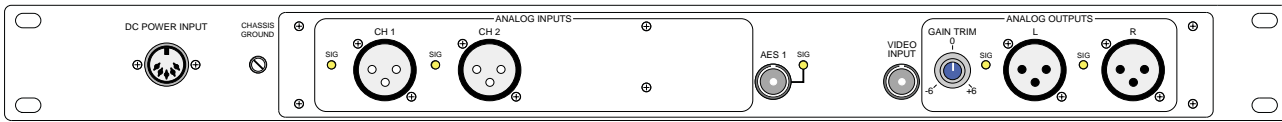
## DESCRIPTION

When your livelihood depends on the integrity of an electronic signal, a Furman MS Series Confidence Monitor can

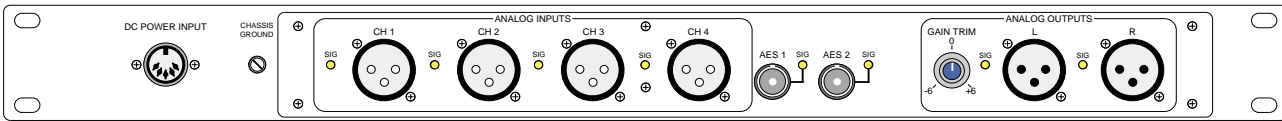
give you blissful peace of mind. They provide assurance that analog audio, digital audio, or video signals are *present and meet established quality standards* before being broadcast, recorded, or otherwise distributed. The various models differ primarily in the types and number of signals they can monitor, though all are housed in compact, single space chassis that occupy minimal rack real estate. Monitoring is accomplished audibly (through speakers or headphones) and visually through meters and video monitors.

All models share many basic features and capabilities. A pair of highly compact yet full range shielded stereo speakers are built in, along with a Speaker Mute switch. An amply powered TRS output is provided for headphone listening. The speakers and headphone amplifiers share a Volume slide control, and non-video models have Balance sliders. A Phase indicator displays the phase relationship of the left and right channels of the source being monitored. The indicator will glow green to amber under normal conditions, and red during conditions of total phase reversal, aiding in determining mono-compatibility. Each input is routed to a bright, fourteen segment LED meter, which may be switched for VU or PPM ballistics and +4 dBu or +8 dBu reference levels with front panel switches. Meter brightness may be adjusted with a dimmer control, to suit user taste and variations in ambient lighting. All front panel control and indicator labels are rear printed on a heavy duty, wear-free mylar overlay. All analog inputs and outputs are high common-mode rejection XLR balanced, and each is provided with a rear panel signal activity indicator for easy identification of system problems. Outputs also have  $\pm 6$  dB Gain Trim controls. The unit is powered with an included UL-approved external power supply via a DIN 5 connector. For maximum reliability, it features a clean, modular design with minimal cabling.

Models with digital monitoring capability are equipped with an A/D Select button and both front and rear bi-color digital signal activity indicator(s). The digital input(s) can accommo-



MS2ADV-1 rear view



MS4AD-1 rear view

date stereo digital signals sampled at rates up to 96 kHz, in AES/EBU format, via rear panel BNC inputs. A/D converters provide up to 8X oversampling, with a dynamic range of 95 dB. Video models include an 1.8" LCD video monitor which automatically senses and displays either NTSC or PAL signals. Adjustments for Color, Brightness, Contrast, and Tint are provided on the front panel.

Because the speakers in the MS Series are magnetically shielded, no special consideration is required for installation in critical locations near video monitors.

The Furman MS Series is protected by a **Three Year Limited Warranty** covering defects in materials and workmanship.

## MS SERIES SPECIFICATIONS

### INPUTS

Analog audio: 2 (or 4) each female balanced XLR  
 CMRR >90 dB, 20 Hz to 20 kHz  
 Differential Input Impedance: 24 kΩ  
 Maximum Input Level: +25 dBu  
 Signal present indicator: -20 dBu sensitivity

Digital audio: 1 (or 2) each BNC, AES/EBU  
 (if present) Resolution: 24 bit  
 Sampling Frequency: 16 kHz to 96 kHz  
 Oversampling: 8X  
 Internal Clock: 256 x Sampling Frequency  
 THD+N: -83 dB  
 Dynamic Range: 95 dB  
 Signal to Noise Ratio: 97 dB  
 Channel Separation: 95 dB  
 Internal Analog Filter: -3 dB at 32 Hz

Video: 1 each BNC Video, auto sense NTSC/PAL  
 (if present) Input level: 1.0 V<sub>p-p</sub> composite video  
 (to EIA RS-170A and PAL Standards)

### OUTPUTS

Analog audio: 2 each male balanced XLR  
 Maximum Output Level: +25 dBu into 1 kΩ  
 Gain Trim: ±6 dB (dual ganged stereo control)  
 Signal Present indicator: -20 dBu sensitivity  
 Differential Output Impedance: 50 Ω with  
 Load Capacitance of up to 1 μF  
 Frequency Response: 20 Hz to 200 kHz  
 THD+N: .002%

Headphone: Power: 270 mW into 56 Ω, both channels  
 driven  
 THD+N: .003%

### VIDEO

(if present) Display type: TFT, LCD  
 Screen Size (diagonal): 1.8 inch  
 Active Display Area: 48.6 mm W x 39.6 mm H  
 Number of pixels: 280 W x 220 H  
 Dot Pitch: 0.127 mm W x 0.121 mm H  
 Brightness: 140 cd/m<sup>2</sup> typical (140 cd/m<sup>2</sup> min.)  
 Contrast Ratio: 100 typical (60 minimum) at  
 optimized viewing angle  
 Viewing Angle: Left/Right: ±45° H (at CR<sub>≥</sub>10)  
 Top/Bottom: ±10°/30° V (at CR<sub>≥</sub>10)

### SPEAKERS

Type: 2 each, 1.5" x 2.75" full range,  
 acoustically tuned with chassis damping.  
 Each channel driven by 20 Watt amplifier.  
 Output: 87 dB SPL at 1 meter, 150 Hz to 16 KHz  
 Magnetically shielded

### CONTROLS

Front Panel: Volume  
 Balance (non-video units only)  
 VU/PPM Select  
 Speaker Mute  
 +4/+8 dBu Reference Level Select  
 Meter Dimmer  
 Analog/Digital Source Select (digital units only)  
 Left Channel Select, Right Channel Select (four  
 input models only)

LCD Monitor: Brightness, Contrast, Color, Tint  
 (if present)

Rear Panel: Gain Trim (±6 dB, analog outputs only)

### INDICATORS

Front Panel: 2 (or 4) each, 14 segment LED meters: -40 dB  
 to +3 dB labels; 0 dB indication is equivalent  
 to +4 dBu or +8 dBu depending on Ref Level  
 setting. Internal trim control allows user adjust-  
 ment. PEAK indicator lights 1 dB above highest  
 display segment, and is internally adjustable.  
 VU/PPM indicator  
 Channel to Channel Phase  
 Analog/Digital input selection  
 Speaker Mute  
 Signal Present (for digital inputs only)

Rear Panel: Signal Present for each analog and digital audio  
 input. Sensitivity: -20 dBu

### POWER

Type: External with DIN 5 connector  
 Operating: Universal 100-240 VAC, 50/60 Hz, 45 W  
 Agency Approvals: UL/CSA/CE listed  
 Output: DC Output: +5 VDC at 3 Amps  
 +12 VDC at 2 Amps  
 -12 VDC at .3 Amps

### MECHANICAL

Dimensions: 19" W x 13" D x 1.75" H  
 Weight: 9 lbs (4.1 kg)

*Specifications subject to change without notice.*